$R_{DS(on),typ}$ $V_{GS} <$ (GS 1 3: 6.4 m

$I_{D \text{ (Sillicon Limited)}}$ 58 A

	Value	Unit

Electrical Characteristics at T_J=25℃ (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 A	65	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	1.0	1.6	2.4	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=60V, T_j=25℃	-	-	1	A
		V_{GS}=0V, V_{DS}=60V, T_j=100℃	-	-	100	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	-	4.6	5.4	m
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=10A	-	6.4	7.5	m
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A	-	60	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	1.3	-	

Dynamic Characteristics

Parameter	Symbol	Conditions				Unit
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=30V, f=1MHz	-	1978	-	pF
Output Capacitance	C_{oss}		-	870	-	
Reverse Transfer Capacitance	C_{rss}		-	56	-	
Total Gate Charge	Q_g(10V)	V_{DD}=30V, I_D=20A, V_{GS}=10V	-	41	-	nC
Total Gate Charge	Q_g(4.5V)		-	25	-	
Gate to Source Charge	Q_{gs}		-	5	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	11	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=30V, I_D=20A, V_{GS}=10V, R_G=10	-	10	-	ns
Rise time	t_r		-	8	-	
Turn off Delay Time	$t_{d(off)}$		-	34	-	
Fall Time	t_f		-	10	-	

Reverse Diode Characteristics

Parameter	Symbol	Conditions				Unit
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=30A	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	V_R=30V, I_F=20A, dI_F/dt=400A/ s	-	30	-	ns
Reverse Recovery Charge	Q_{rr}		-	68	-	nC

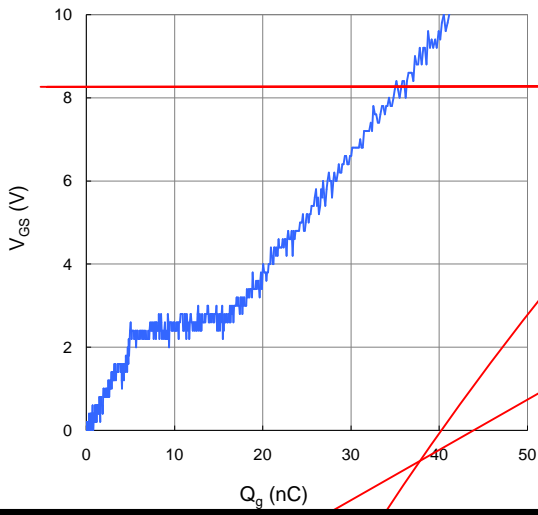Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage
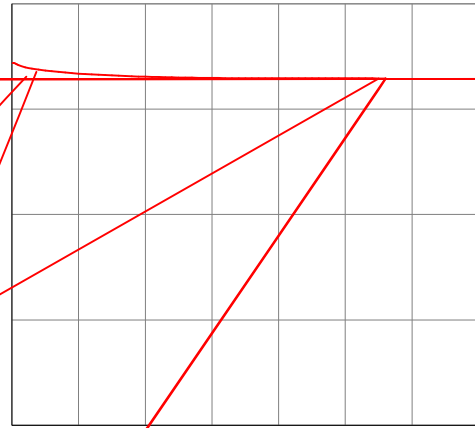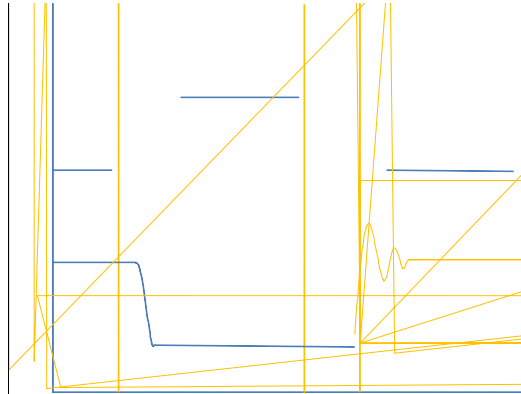

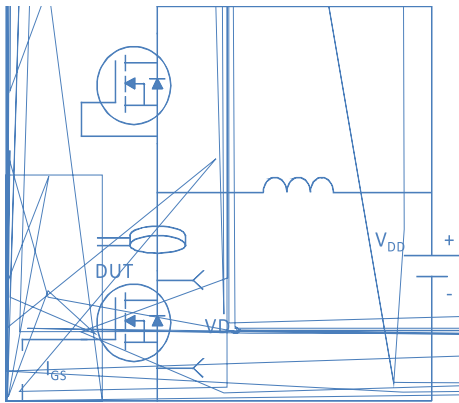Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

Figure 10. Maximun Drain Current vs. Case Temperature
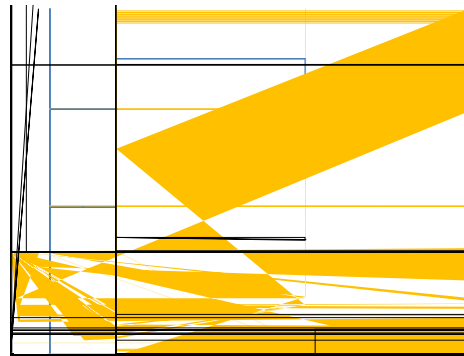
Thermal Impedance, Junction-to-Ambient
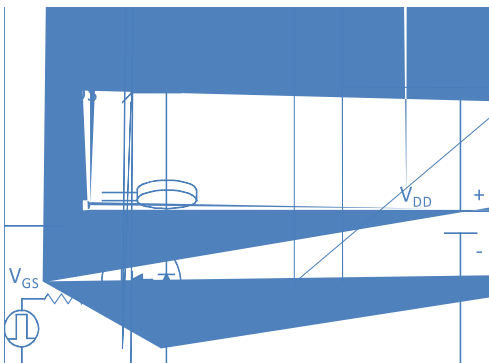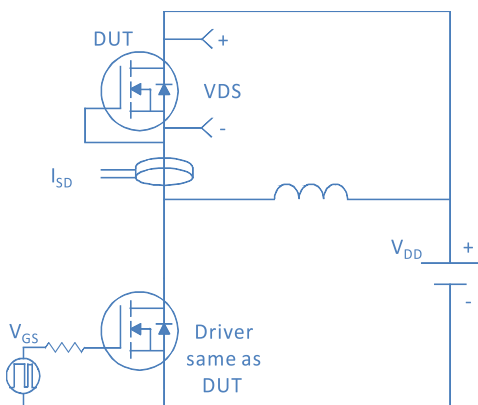
Nov. 2019

Inductive switching Test

Gate Charge Test

V_DD +
-

DUT

VD

GS

Uclamped Inductive Switching (UIS) Test

V_DD +
-

V_GS

Diode Recovery Test

DUT +
VDS
-

I_SD

V_DD +
-

V_GS Driver
same as
DUT
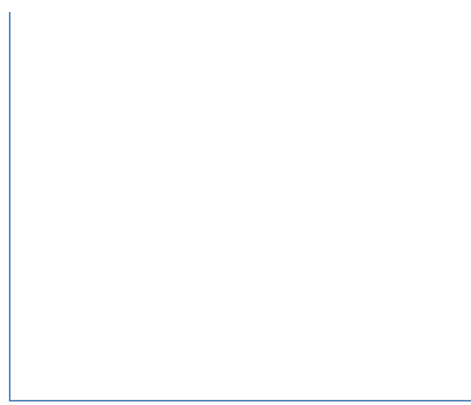
Package Outline

TO-220F, 3 leads
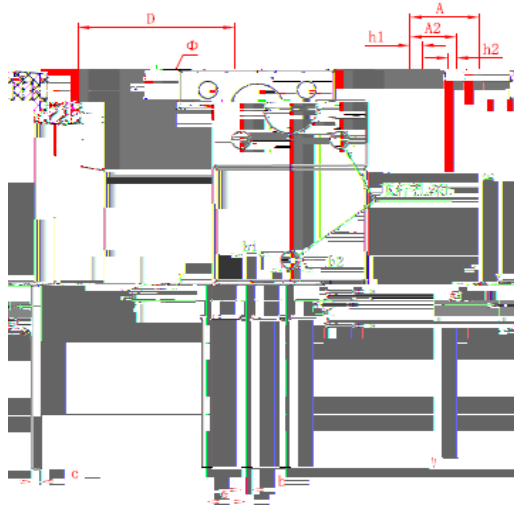
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.350	4.650	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.850	3.150	0.112	0.124
A3	2.600	2.800	0.102	0.110
b	0.500	0.750	0.020	0.030
b1	0.800	1.050	0.031	0.041
b2	1.100	1.350	0.043	0.053
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.100	1.300	0.043	0.051